

REMARKS

Claim Rejections under 35 U.S.C. 102

Responsive to the rejection of claims 1-2, 8 and 11 under 35 U.S.C. 102(b) as being anticipated by Fujiwara et al. (J.P. Pat. 2002-133932A), Applicant respectfully traverses this rejection and submits that claims 1, 2, 8, and 11 are in condition for allowance.

Claim 1 of the present invention recites, in part:

a light source group having a plurality of point light sources; and
a light guide plate having a light input surface for receiving light . . . ,
the light input surface being concave;
wherein the light source group faces the light input surface, and the
light input surface has a curvature matching a distribution of light
from the light source group. (Emphasis added.)

Applicant submits that Fujiwara et al., taken alone or in combination with any of the other cited references, fails to teach or suggest the subject matter set forth in claim 1.

Fujiwara et al. discloses a backlight module (4) with a light guide member (5). The light guide member (5) is provided with three surface areas (7), each of which is configured for receiving a respective one of LEDs (10B, 10G, 10R). As can be seen from FIG. 1 of Fujiwara et al., the three light-receiving surface areas (7) are each composed of a series of flat sides (i.e., not concave), in correspondence to the

shapes of LEDs (10B, 10G, 10R).

It is these three flat-sided light-receiving surface areas (7) of Fujiwara et al. that receive the light from the LEDs (10B, 10G, 10R). As supported by the illustrated light distribution in FIG 1, no other surfaces associated with light guide member (5) actually receive light from the LEDs (10B, 10G, 10R). Additionally, given the block configuration of the LEDs (10B, 10G, 10R) and their proximity to the three light-receiving surfaces (7), such LEDs (10B, 10G, 10R) cannot be expected to generate a distribution of light that has any sort of continuous curvature. This curvature in the light distribution simply is not disclosed or suggested by Fujiwara et al. and thus cannot be matched by the three surface light-receiving surfaces (7).

The word “**concave**” includes the meaning of “a concave surface is curved inwards in the middle” (Merriam-Webster’s dictionary), and thus the expressions, “the light input surface being concave” and “the **light input surface has a curvature matching a distribution of light** from the light source group”, as set forth in claim 1, should be subject to a similar corresponding meaning. Moreover, the three flat-sided light-receiving surfaces (7) of Fujiwara et al. do not qualify as “concave” surfaces, nor does the light distribution created by any of LEDs (10B, 10G, 10R). Accordingly, Fujiwara clearly fails to teach or suggest the present invention, as set forth in claim 1.

In addition, Fujiwara et al. **discloses a rear surface of the light guide member (5) that has several curved portions having different curvatures (both concave and convex portions)**. Compared with the backlight module (2) of the prior art described by Applicant in the instant application, the light source element (4) of Fujiwara et al. is substantially similar to the backlight module (2). Because

each LED emits light over a certain range of angles, a scope of illumination of the RGB LEDs is the sum of the contributions of each LED's output light. Nevertheless, the illumination scope generally cannot cover the whole light guide plate. Therefore, the light source element of Fujiwara et al. can still be expected to exhibit dark zones. However, the light guide plate described and claimed in the current application is entirely illuminated and has no dark zones. Therefore, the backlight module of amended claim 1 produces new and unexpected results.

Accordingly, Applicant submits that claim 1 is not only novel over Fujiwara et al., under 35 U.S.C. 102, but is also unobvious over Fujiwara et al., under 35 U.S.C. 103. Further, claims 2, 8 and 11, which depend from claim 1, should also be patentable over Fujiwara et al., under 35 U.S.C. 102 and 103. Reconsideration and withdrawal of the present rejection and allowance of claims 1-2, 8 and 11 are respectfully requested.

Responsive to the rejection of claims 1, 3, 11 and 13, under 35 U.S.C. 102(b), as being anticipated by Kurokawa et al. (J.P. Pat. 2001-014922A), Applicant hereby respectfully traverses this rejection and submits that claims 1, 3, 11 and 13 are allowable in their current form.

Claim 1 of the present invention recites, in part:

a light source group having a plurality of point light sources; and
a light guide plate having a light input surface for receiving light . . . ,
the light input surface being concave;
wherein the light source group faces the light input surface, and the
light input surface has a curvature matching a distribution of light
from the light source group. (Emphasis added.)

Applicant submits that Kurokawa et al., taken alone or in combination with any of the other cited references, fails to teach or suggest the subject matter set forth in claim 1.

As illustrated in FIGS. 2 and 3, Kurokawa et al. discloses a surface light source device that includes a light guide plate (2) and a plurality of LEDs (11). The light guide plate (2) includes an incident surface made up of surface portions (211, 212, and 213). A plurality of recessed parts (211) is formed as part of the incident surface, a plurality of cutout parts (212) is further located in the recessed parts, and a plurality of curved end surfaces (213) exists between the recessed parts (211). Each of the LEDs (11) is disposed adjacent to the recessed part (211) and the emission sides of light from the LEDs (11) face to the cutout parts (212) respectively.

Due to the positioning of the LEDs 11 of Kurokawa et al., the surface portions (211, 212, and 213) all can receive light from the LEDs (11) and, thus, together define a "light input surface" within the scope set forth in claim 1. Additionally, from FIGS. 2 and 3, if the surface portions (211 and 212) are considered to be concave, the surface portions (213) must be considered to be convex. Given these large variances in the shape and convexity of the incident surface, in its entirety, Kurokawa et al. clearly does not disclose or suggest a "light input surface" that "has a curvature matching a distribution of light from the light source group", as recited by claim 1. Further note that claim 1 requires that the curvature not just match the light distribution from any one light source but, instead, must match that produced by the entire light source group.

In addition, Kurokawa et al. discloses that the incident surface of the light

guide plate (2) has many curved portions and that each LED (11) faces an isolated curved portion of the incident surface. Compared with the backlight module (2) of the prior art discussed in the current application, the surface light source device of Kurokawa is substantially similar to the backlight module (2). Because each LED emits light over a certain range of angles, a scope of illumination of the RGB LEDs is the sum of the contributions of each LED's output light. Nevertheless, the illumination scope generally cannot cover the whole light guide plate. Therefore, the surface light source device of Kurokawa et al. can still be expected to exhibit dark zones. In contradistinction, the light guide plate, as set forth and claimed in this application, is entirely illuminated and has no dark zones. Therefore, the backlight module of amended claim 1 produces new and unexpected results.

Accordingly, Applicant submits that claim 1 is not only novel over Kurokawa et al., under 35 U.S.C. 102, but is also unobvious over Kurokawa et al., under 35 U.S.C. 103. Further, claims 3, 11 and 13, which depend from claim 1, should also be patentable over Kurokawa et al., under 35 U.S.C. 102 and 103. Reconsideration and withdrawal of the rejection and allowance of claims 1, 3, 11 and 13 are respectfully requested.

Responsive to the rejection of claims 15-16 under 35 U.S.C. 102(b) as being anticipated by Kurokawa et al. (J.P. Pat. 2001-014922A), Applicant hereby respectfully traverses this rejection and submits that claims 1, 3, 11 and 13 are allowable in their current form.

Claim 15 recites, in part:

at least one of said light input surface and a dispersion manner of said

plurality of spaced light sub-sources is configured to **be in a form of concave to conform with the other** so as to form no dark zones in the light guide plate. (Emphasis added.)

For similar reasons to those asserted above in relation to claim 1, it is submitted that Kurokawa et al. does not disclose, teach or suggest all the limitations of claim 15, in its current form.

Accordingly, claim 15, as well as claim 16 depending therefrom, are submitted to be patentable over Kurokawa et al., under both 35 U.S.C. 102(b) and 35 U.S.C. 103. Reconsideration and withdrawal of the present rejection and allowance of claims 15 and 16 are respectfully requested.

Claim Rejections under 35 U.S.C. 103

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujiwara et al. (J.P. Pat. 2002-133932A) or Kurokawa et al. (J.P. Pat. 2001-014922A).

Examiner states that both Fujiwara et al. and Kurokawa et al. do not specifically teach a light input surface being spherically concave, as set forth in claim 6. Accordingly, Applicant submits that claim 6 is allowable over such references, based on its own merits. Further, claim 6 depends directly from claim 1, which is in condition for allowance for the reasons set forth above. As such, reconsideration and withdrawal of the rejection and allowance of claim 6 is respectfully requested.

Claims 9, 17 and 12, 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujiwara et al. (J.P. Pat. 2002-133932A) or Kurokawa et al. (J.P. Pat. 2001-014922A) as applied to claims 8 and 11, respectively above, and further in view of Hirakata (U.S. Pat. 6,191,833).

Claims 9, 12, 17, and 18 depend directly or indirectly depend from claim 1, which is in condition for allowance for the reasons set forth above.

Even in further view of Hirakata, claim 1 is still submitted to be unobvious and patentable over Fujiwara et al. or Kurokawa et al. Hirakata only discloses that a brightness enhancing film is disposed on a diffusing plate, which is disposed on a light guide plate. Therefore, when Hirakata is combined with Fujiwara or Kurokawa, it would not be obvious to obtain the invention as defined by claim 1, with its unique advantages.

In summary, there is nothing in the cited reference that teaches or suggests to one of ordinary in the art that they might or should be combined to provide the backlight module of claim 1. Moreover, the backlight module of claim 1 produces new and unexpected results. That is, the light guide plate not only has a simple structure and is easy to manufacture, but such a light guide plate also is entirely illuminated and has no dark zones.

Accordingly, claim 1 is submitted to be unobvious and patentable over Fujiwara or Kurokawa, and further in view of Hirakata. Due to their dependency on still allowable claim 1, reconsideration and withdrawal of the rejection and allowance of claims 9, 12, 17, and 18 is respectfully requested.

In view of the foregoing, the present application as claimed in the pending

claims is considered to be in a condition for allowance, and an action to such effect is earnestly solicited.

Respectfully submitted,

Jyh-Chain Lin

By 

Wei Te Chung

Registration No.: 43,325

Foxconn International, Inc.

P.O. Address: 1650 Memorex Drive, Santa Clara, CA 95050

Tel. No.: (408) 919-6137